CORRECTED CLAIMS:

A replacement listing of the claims corrected in accordance with current 37 CFR § 1.121 formatting is provided. This listing of claims replaces all prior listings of claims.

LISTING OF CLAIMS:

1. (Currently Amended) A fusion protein, comprising a nucleotide binding domain operatively linked to a ligand binding domain from an intracellular receptor, wherein:

the nucleotide binding domain is a polydactyl zinc-finger ~~peptide or~~ that contains at least three modular ~~portion~~ portions thereof, wherein:

each modular portion [[that]] interacts with a contiguous nucleotide sequence of at least about 3 nucleotides; and

the ligand specificity of the binding domain for endogenous and exogenous ligands ~~has been~~ is modified to change its ligand specificity compared to the ligand specificity of the ligand binding domain of the native hormone receptor; and

the fusion protein is a ligand activated transcriptional regulator.

2. (Original) The fusion protein of claim 1, further comprising an operatively linked transcription regulating domain.

3. (Original) The fusion protein of claim 1, wherein the intracellular receptor is a nuclear hormone receptor.

4. (Cancelled)

5. (Previously Presented) The fusion protein of claim 1, wherein the modified ligand-binding domain is not substantially activated by endogenous ligands relative to exogenous or non-natural ligands.

6. (Currently Amended) The fusion protein of claim 1, wherein a module of the zinc-finger peptide binds to a sequence of nucleotides of the formula $(GNN)_n$, where G is guanidine, N is any nucleotide and n is an integer from [[1]] 3 to 6.

7. (Currently Amended) The fusion protein of claim 6, wherein n is [[3 to]] 6, whereby the resulting zinc finger has unique specificity for a targeted gene.

8. (Currently Amended) A fusion protein of claim 1, ~~comprising a nucleotide binding domain operatively linked to a ligand binding domain from an intracellular receptor,~~ wherein:

the nucleotide binding domain comprises at least 6 modular portions of [[is]] a polydactyl zinc-finger peptide, wherein each [[or]] modular portion thereof [[that]] interacts with a contiguous nucleotide sequence of at least about 3 nucleotides, whereby the nucleotide binding domain has unique specificity for a targeted gene;

the zinc-finger peptide is comprised of modular units from a C2H2 zinc-finger peptide ~~that interacts with a sequence of nucleotides and targets the fusion protein to an exogenous or endogenous gene that comprises the sequence of nucleotides~~; and

the fusion protein is a gene-specific ligand activated transcriptional regulator.

9. (Cancelled)

10. (Currently Amended) The fusion protein of claim [[9]] 1, that comprises at least [[three]] four zinc fingers or variants thereof.

11. (Original) The fusion protein of claim 1, wherein the intracellular receptor is a nuclear hormone receptor selected from the group consisting of estrogen receptors, progesterone receptors, glucocorticoid-α receptors, glucocorticoid-β receptors, mineralocorticoid receptors, androgen receptors, thyroid hormone receptors, retinoic acid receptors, retinoid X receptors, Vitamin D receptors, COUP-TF receptors, ecdysone receptors, Nurr-l receptors and orphan receptors.

12. (Original) The fusion protein of claim 1, wherein the intracellular receptor is a steroid receptor.

13. (Currently Amended) The fusion protein of claim 3, wherein the hormone receptor is a progesterone receptor variant or an estrogen receptor variant~~, wherein a receptor variant comprises a ligand binding domain that has altered ligand specificity for endogenous and exogenous ligands relative to its native receptor~~.

14. (Original) The fusion protein of claim 2, wherein the transcription regulating domain comprises a transcription activation domain.

15. (Original) The fusion protein of claim 2, wherein the transcription regulating domain comprises a transcription activation domain selected from the group consisting of VP16, VP64, TA2, STAT-6, p65 and derivatives, multimers and combinations thereof that have transcription activation activity.

16. (Original) The fusion protein of claim 14, wherein the transcription regulating domain comprises a nuclear hormone receptor transcription activation domain or variant thereof that has transcription activation activity.

17. (Original) The fusion protein of claim 14, wherein the transcription regulating domain comprises a steroid hormone receptor transcription activation domain or variant thereof.

18. (Previously Presented) The fusion protein of claim 14, wherein the transcription regulating domain comprises a viral transcription activation domain or variant thereof that has transcription activation activity.

19. (Original) The fusion protein of claim 18, wherein the transcription regulating domain comprises a VP16 transcription activation domain or variant thereof.

20. (Currently Amended) A fusion protein of claim 1, further[[,]] comprising ~~a nucleotide binding domain operatively linked to a transcription regulating domain and a ligand binding domain from an intracellular receptor, wherein:~~

~~the nucleotide binding domain is a polydactyl zinc finger peptide or modular portion thereof that interacts with a contiguous nucleotide sequence of at least about 3 nucleotides;~~

[[the]] a transcription regulating domain that comprises a transcription repression domain [[; and]]

~~the fusion protein is a ligand activated transcriptional regulator~~.

21. (Original) The fusion protein of claim 20, wherein the transcription repression domain is selected from the group consisting of ERD, KRAB, SID, Deacetylase, and derivatives, multimers and combinations thereof such as KRAB-ERD, SID-ERD, $(KRAB)_2$, $(KRAB)_3$, KRAB-A, $(KRAB\text{-}A)_2$, $(SID)_2$ (KRAB-A)-SID and SID-(KRAB-A).

22. (Currently Amended) A fusion protein of claim 1, comprising ~~a nucleotide binding domain operatively linked to a transcription regulating domain and a ligand binding domain from an intracellular receptor, wherein~~

~~the nucleotide binding domain is a polydactyl zinc finger peptide or modular portion thereof that interacts with a contiguous nucleotide sequence of at least about 3 nucleotides;~~

the fusion protein ~~is a ligand activated transcriptional regulator; and the fusion protein is~~ encoded by the sequence of nucleotides set forth in any of SEQ ID Nos. 1-18.

23. (Original) A nucleic acid molecule, comprising a sequence of nucleotides encoding the fusion protein of claim 1.

24. (Original) A nucleic acid molecule, comprising a sequence of nucleotides encoding the fusion protein of claim 2.

25. (Currently Amended) A nucleic acid molecule encoding a fusion protein of claim 1, ~~comprising a sequence of nucleotides encoding a fusion protein,~~ wherein:

the fusion protein comprises a C7 C2H2 nucleotide binding domain operatively linked to a ligand binding domain from an ~~intracellular receptor~~ estrogen receptor, which are [[,]] ~~wherein the nucleotide binding domain is a polydactyl zinc finger peptide or modular portion thereof that interacts with a contiguous nucleotide sequence of at least about 3 nucleotides;~~

~~the fusion protein is a ligand activated transcriptional regulator; and~~

~~the fusion protein is~~ encoded by a sequence of nucleotides set forth in SEQ ID No. 1.

26. (Original) A vector, comprising a sequence of nucleotides encoding the fusion protein of claim 1.

27. (Original) A vector, comprising a sequence of nucleotides encoding the fusion protein of claim 2.

28. (Original) A cell, comprising the expression vector of claim 26.

29. (Original) A cell, comprising the expression vector of claim 27.

30. (Original) The cell of claim 28 that is a eukaryotic cell.

31. (Original) The cell of claim 29 that is a eukaryotic cell.

32. (Currently Amended) A viral vector comprising a sequence of nucleotides encoding a fusion protein, wherein:

the fusion protein comprises a nucleotide binding domain operatively linked to a ligand binding domain from an intracellular receptor, wherein the nucleotide binding domain is a polydactyl C2H2 zinc-finger peptide or modular portion thereof that interacts with a contiguous nucleotide sequence of at least about [[3]] 9 nucleotides; and

the fusion protein is a ligand activated transcriptional regulator.

33. (Original) The vector of claim 27 that is a viral vector.

34. (Previously Presented) The vector of claim 32, wherein the viral vector is derived from a DNA virus or a retrovirus.

35. (Original) The vector of claim 34 that is selected from the group consisting of an adenoviral vector, and adeno-associated viral vector, a herpes virus vector, a vaccinia virus vector and a lentiviral vector.

36. (Cancelled)

37. (Previously Presented) The vector of claim 33, wherein the viral vector is derived from a DNA virus or a retrovirus.

38. (Original) The vector of claim 37 that is selected from the group consisting of an adenoviral vector, and adeno-associated viral vector, a herpes virus vector, a vaccinia virus vector and a lentiviral vector.

39. (Currently Amended) A combination, comprising:

a fusion protein of claim 1 ~~comprising a nucleotide binding domain operatively linked to a ligand binding domain from an intracellular receptor, wherein the nucleotide binding domain is a polydactyl zinc-finger peptide or modular portion thereof that interacts with a contiguous nucleotide sequence of at least about 3 nucleotides and the fusion protein is a ligand activated transcriptional regulator~~; or

a nucleic acid molecule comprising a sequence of nucleotides that encodes the fusion protein; and

a regulatable expression cassette that comprises at least one response element recognized by the nucleic acid binding domain of the fusion protein.

40. (Cancelled)

41. (Original) The combination of claim 39 that comprises a single composition that contains the fusion protein or nucleic acid molecule that encodes the fusion protein, and the regulatable expression cassette in a pharmaceutically acceptable excipient.

42. (Original) The combination of claim 39, wherein the fusion protein or nucleic acid molecule comprising a sequence of nucleotides that encodes the fusion protein, and the regulatable expression cassette are in separate compositions.

43. (Cancelled)

44. (Currently Amended) The combination ~~composition~~ of claim [[43]]41, wherein the composition [[that]] is formulated for single dosage administration.

45. (Cancelled)

46. (Original) The combination of claim 39, wherein the regulatable expression cassette comprises 3 to 6 response elements.

Claims 47-68 (Cancelled)

69. (Currently Amended) The fusion protein of claim 1, wherein the ~~polydactyl zinc finger peptide or modular portion thereof~~ nucleic acid binding domain interacts with a contiguous nucleotide sequence of ~~at least about 3 nucleotides to~~ about 18 nucleotides.

70. (Original) A non-viral delivery system, comprising the fusion protein of claim 1 or a nucleic acid molecule encoding the fusion protein.

71. (Original) The non-viral delivery system of claim 70, further comprising a nucleic acid molecule that comprises an expression cassette containing a sequence of nucleotides with which the nucleic acid binding domain of the fusion protein interacts.

72. (Original) The non-viral delivery system of claim 70, wherein the non-viral delivery system is selected from the group consisting of DNA-ligand complexes, adenovirus-ligand-DNA complexes, direct injection of DNA, $CaPO_4$ precipitation, gene gun techniques, electroporation, liposomes and lipofection.

73. (Currently Amended) The fusion protein of claim [[9]] 10, wherein the ~~zinc finger peptide comprised of at least one zinc finger or a variant thereof~~ nucleic acid binding domain binds to a targeted nucleic acid molecule with a dissociation constant of less than about 1.0 nanomolar.

74. (New) The fusion protein of claim 1 that comprises a DNA binding domain, two ligand binding domains and a transcription modulating domain.

75. (New) The fusion protein of claim 1 that forms a dimer when bound to a polynucleotide.

76. (New) The fusion protein of claim 1 that is a monomer when bound to a polynucleotide.

77. (New) The fusion protein of claim 1 that comprises a second ligand binding domain.

78. (New) The fusion protein of claim 77, wherein the second ligand binding domain is the same as the first binding domain.

79. (New) The fusion protein of claim 77, wherein the second ligand binding domain is different from the first binding domain.

80. (New) The fusion protein of claim 77, wherein the second ligand binding domain is from an intracellular receptor is a nuclear hormone receptor selected from the group consisting of estrogen receptors, progesterone receptors, glucocorticoid-α receptors, glucocorticoid-β receptors, mineralocorticoid receptors, androgen receptors, thyroid hormone receptors, retinoic acid receptors, retinoid X receptors, Vitamin D receptors, COUP-TF receptors, ecdysone receptors, Nurr-1 receptors and orphan receptors.

81. (New) The fusion protein of claim 79, wherein the second ligand binding domain is from an intracellular receptor is a nuclear hormone receptor selected from the group consisting of estrogen receptors, progesterone receptors, glucocorticoid-α receptors, glucocorticoid-β receptors, mineralocorticoid receptors, androgen receptors, thyroid hormone receptors, retinoic acid receptors, retinoid X receptors, Vitamin D receptors, COUP-TF receptors, ecdysone receptors, Nurr-1 receptors and orphan receptors.

82. (New) The fusion protein of claim 1 that comprises a heterodimer.

83. (New) The fusion protein of claim 82, wherein the heterodimer contains at least three zinc finger modular units, two different ligand binding sites and a transcription modulating domain.

84. (New) The fusion protein of claim 1 that comprises a dimer containing first and second monomers, wherein:

the first and second monomers contain a ligand binding domain derived from a nuclear hormone receptor;

at least one monomer has a nucleotide binding domain operatively linked to a ligand-binding domain;

at least one monomer has a transcription regulating domain operatively linked to a ligand-binding domain;

the nucleotide binding domain is a polydactyl C2H2 zinc-finger peptide that binds to a contiguous sequence of nucleotides of about 18 nucleotides.

85. (New) The fusion protein of claim 84, wherein the first monomer and the second monomer have a nucleotide binding domain operatively linked to a ligand-binding domain.

86. (New) The fusion protein of claim 84, wherein the first monomer and the second monomer have a transcription regulating domain operatively linked to a ligand-binding domain.

87. (New) The fusion protein of claim 84, wherein the dimer is a homodimer.

88. (New) The fusion protein of claim 84, wherein the dimer is a heterodimer.